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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,902	11/07/2000	David Shepherd Stewart Robb	31749/205879	5373

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EXAMINER	
SHIFERAW, ELENI A	
ART UNIT	**PAPER NUMBER**
2136	

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/674,902	ROBB ET AL.	
	Examiner	Art Unit	
	Eleni A Shiferaw	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/7/1999*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28 are presented for examination.

Specification

The specification is objected because the headings of the background, brief summary, brief description of the several views of the drawing (s) and detailed description of the invention is necessary.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(e) BACKGROUND OF THE INVENTION.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING (S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Killean et al. (Killean, U.S. Patent No. 5,657,473) in further view of Fisherman et al. (Fisherman, U.S. Patent 5,586,301).

4. As per claim 1, Killean teaches the invention substantially as claimed comprising

A storage device for a host computer system, the storage device comprising: storage means for storing information, Intelligent means for controlling the transfer of information to and from the storage means; (Col. 2 lines 46-64)

Interfacing means for interfacing the storage device with the host computer system and via which information is transferred to and from the storage means under the control of said intelligent means; (Col. 5 lines 54-64)

the storage means comprising: a storage medium divided into a plurality of non-overlapping partitions including a boot partition and at least one general partition, each said partition being divided into a plurality of sectors, (Col. 2 lines 46-64)

non-volatile read-only-memory (ROM) means for storing firmware for controlling operation of the storage device; and volatile random-access-memory (RAM) means; (Col. 6 lines 22-30)

wherein supervising means for operating said intelligent means, said supervising means being incorporated at least partly as firmware which is stored in said non-volatile ROM means, (See col. 5 line 47-col. 6 line 6)

The Killean fail to explicitly teach the boot partition including a boot sector containing code for use by the host computer system to perform operating system boot of the host computer system;

wherein supervising means is incorporated in said storage means so as to protect information stored in the storage medium

and wherein the storage device further includes: a host executable code segment, stored in said storage means, for allowing user control of the supervising means via the host computer system and for controlling initiation of operating system boot in the host computer system;

and loader means stored in the storage means and comprising host executable code for loading said code segment to the host computer system and causing the host computer system to execute the loaded code segment;

and wherein said supervising firmware stored in the ROM means is adapted to intercept any request for said boot sector, issued by the host computer system in use thereof, and to supply said loader means to the host computer system to satisfy the request.

However, Fisherman teaches

hard disk comprising MS-DOS operating system logical disk structure, i.e., the disk space is divided into a boot sector, and BIOS (Col. 4 lines 58- col. 5 line 6, Fig. 1)

set of protection programs and the protection control program is stored on the hard disk to protect data stored on computer hard disks; (Col. 4 lines 7-10;)

and wherein the storage device further includes: a host executable code segment, stored in said storage means, for allowing user control of the supervising means via the host computer system and for controlling initiation of operating system boot in the host computer system; (Col. 5 line 37- col. 6 line 67)

and loader means stored in the storage means and comprising host executable code for loading said code segment to the host computer system and causing the host computer system to execute the loaded code segment; (Col. 6 lines 43- col. 7 line 2, Fig. 1)

and wherein said supervising firmware stored in the ROM means is adapted to intercept any request for said boot sector, issued by the host computer system in use thereof, and to supply said loader means to the host computer system to satisfy the request. (Col. 3 line 50-col. 4 line 58)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Killean and Fisherman to divided into a plurality of non-overlapping partitions including a boot partition and at least one general partition, each said partition being divided into a plurality of sectors, the boot partition including a boot sector containing code for use by the host computer system to perform operating system boot of the host computer system, wherein supervising means is incorporated in said storage means so as to protect information stored in the storage medium, and wherein the storage device further includes: a host executable code segment, stored in said storage means, for allowing user control of the supervising means via the host computer system and for controlling initiation of operating system boot in the host computer system, and loader means stored in the storage means and comprising host executable code for loading said code segment to the host computer system and causing the host computer system to execute the loaded code segment, and wherein said supervising firmware stored in the ROM means is adapted to intercept any request for said boot sector, issued by the host computer system in use thereof, and to supply said loader means to the host computer system to satisfy the request because it would protect data stored on computer hard discs while permitting multiple user operation, prevent unauthorized access to hard-disc controller by software applications, permit safe service of requests which use BIOS, and requiring additional hardware does not provide the most efficient use of hardware.

5. As per claim 2, Killean in view of Fisherman teach all the subject matter claimed in claim 1 including Fisherman teaches a storage device, wherein the supervising means is provided wholly as firmware which is stored in said non-volatile ROM means on the storage device. (See col. 4 lines 34-56) The rational for combining are the same as claim 1 above.

6. As per claim 3, the combination of Killean and Fisherman teach all the subject matter claimed in claim 1. In addition Fisherman further discloses a hard-disk controller within the computer system, which reads micro-controller. (Col. 3 lines 41-50). The rational for combining are the same as claim 1 above.

7. As to claim 23, it has similar limitations as claim 1; therefore, it is being rejected under the same rationale.

8. As to claim 24, it has similar limitations as claim 1; therefore, it is being rejected under the same rationale. In addition, Killean discloses the code segment, when executed, initiates a user interface procedure whereby a user may select a protection option from a selection of protection options; and whereupon, subsequent to a said selection having been made by the user, said code segment transfers a boot program from the boot sector of the storage medium and causes the host computer system to execute said boot program so as to initiate operating system boot in the host computer system. (See col. 4 lines 1-60) The rational for combining are the same as claim 1 above.

9. Claims 4 – 21, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Killean et al. (U.S. Patent No. 5,657,473) in view of Fisherman et al. (Fisherman, U.S. Patent 5,586,301), and in further view of White et al. (White, U.S. Patent 6092161).

10. As per claim 4, the combination of Killean and Fisherman teach all subject matter claimed in claim 1, the combination fails to explicitly teach a storage device wherein the supervising means operates said intelligent means so as to allow/restrict/prohibit read/write operations upon the storage medium depending upon whether information to be read from a sector or written to a sector is operating system information or user information, whether the sector is in the boot partition or in a general partition, and whether if the partition is a general partition the partition is active or inactive.

However, White teaches the use of supervising means allowing/restricting/prohibiting read/write operations upon the storage medium depending upon whether information to be read from a sector or written to a sector is operating system information or user information, whether the sector is in the boot partition or in a general partition, and whether if the partition is a general partition the partition is active or inactive. (See col. 3 lines 28-35)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of White with in the combination of Killean and Fisherman, because it would provide a processor, which may be made inaccessible to a user and to any virus, and which supervises all data transfers between and within sub-divisions of the storage medium or storage media placed under its control; and would provide a means of protecting computer systems and may be implemented in hardware or firmware.

11. As per claim 5, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device, wherein the supervising means also ensures that

firmware stored on the ROM means of the storage device, which includes the supervisor firmware, is also protected in that a user, or a user program operating in the host computer system, does not have access to the ROM means of the storage device itself. (See col. 6 line 13 - col. 7 line 65) The rational for combining are the same as claim 4 above.

12. As per claim 6, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device, wherein the supervising means is configured so as to cause a warning to be issued to the user should an attempt be made to perform a prohibited read, write or format operation. (See col. 2 line 54-Col. 3 line 44) The rational for combining are the same as claim 4 above.

13. As per claim 7, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device, wherein at least one of said partitions of the storage device comprises a Write Mary Recoverable (WMR) partition wherein, in use, if a write command is issued to overwrite any information stored in the WMR partition the updated information is stored elsewhere on the storage medium, and a pointer to the updated information is provided so the updated information can be accessed as required during the remainder of the session, and wherein a system reset causes the pointer to the updated information to be cleared. (See col. 2 lines 13-25) The rational for combining are the same as claim 4 above.

14. As per claim 8, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device, wherein the or each said WMR partition has a Sector Relocation Table (SRT) associated therewith which is held in said volatile RAM means of the storage device, and each entry in a said SRT is a pointer which defines the address of a range of

sectors in the WMR partition that have been updated and an address where the updated information is located, this location being within a dedicated area on the storage medium which is accessed only by the supervisor means. (See col. 2 line 66 - col. 3 line 27) The rational for combining are the same as claim 4 above.

15. As per claim 9, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device according to claim 1, wherein at least one of said partitions of the storage device comprises a Write Many Recoverable (WMR) partition wherein, in use, if a write command is issued to overwrite any information stored in said at least one WMR partition, prior to undertaking said write command said information is copied and stored elsewhere on the storage medium to be copied back to said WMR partition when required. (See col. 3 lines 53-60) The rational for combining are the same as claim 4 above.

16. As per claim 10, the combination of Killean and White teach all subject matter claimed in claim 1. In addition Fisherman teaches a storage device, wherein the loader means is configured to load said code segment to a central processing unit (CPU) of the host computer system for execution by the host computer system prior to operating system boot. (See col. 6 lines 29-67, Figs. 1-2) The rational for combining are the same as claim 4 above.

17. As per claim 11, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches a storage device, wherein the loader means is provided in said non-volatile ROM means of the storage device. (See col. 9 lines 25-35) The rational for combining are the same as claim 4 above.

18. As per claim 12 the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches storage device, wherein said loader means is provided in a reserved area on the storage medium, which reserved area is inaccessible to a user or user program. (See col. 6 lines 13-22, and col. 7 lines 57-62) The rational for combining are the same as claim 4 above.

19. As per claim 13, the combination of Killean and White teach all subject matter claimed in claim 1. In addition Fisherman teaches a storage device, wherein the code segment is provided in said non-volatile ROM means of the storage device. (See col. 5 lines 45-50) The rational for combining are the same as claim 4 above.

20. As per claim 14, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition White teaches storage device according to claim 10, wherein the code segment is provided in a reserved area of the storage medium, which is inaccessible to a user or user program, but is accessible to the supervising means, whereby unauthorized alteration of the code segment is prevented. (See col. 2 lines 42-65) The rational for combining are the same as claim 4 above.

21. As per claim 15, the combination of Killean and Fisherman and White teach all subject matter claimed in claim 1. Further Fisherman and White teach a storage device according to claim 1, wherein said host executable code segment comprises code for enabling the storage device to be set in either "supervised" mode, in which the supervising means is active, or "unsupervised" mode in which the supervising means is not active. (Fisherman, col. 4 lines 7-34; active and passive operating

mode, and White, col. 8 line25- col. 7 line 65- col. 8 line 68) The rational for combining are the same as claim 4 above.

22. As per claim 16, the combination of Killean and Fisherman and White teach all subject matter claimed in claim 1. In addition Killean and White teach a storage device according to claim 15, wherein said code segment, when executed, provides user prompts which allow a user to select said "supervised" mode, or by entry of a password select said unsupervised, mode, and the code segment is constructed such that, subsequent to mode selection by the user, the code segment transfers a boot program from the boot sector of the storage medium and causes the host computer system to execute said boot program so as to initiate operating system boot in the host computer system. (Killean, Col 5 lines 23-45 and White col. 7-8) The rational for combining are the same as claim 4 above.

23. As per claim 17, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. Further White teaches a storage device according to claim 10, wherein said storage device is a hard disk drive and the storage medium comprises at least one disk platter, and said loader means is provided in at least one reserved track of said at least one disk platter. (See col. 7 lines 56-61; reserved storage medium called virus isolator space) The rational for combining are the same as claim 4 above.

24. As per claims 18, 19, 20, and 21 the combination of Killean and Fisherman teach all subject matter claimed in claim 1. Further White teaches a storage device according to claim 1 wherein the storage device is a hard disk drive, a storage device wherein the storage medium comprises at least one disk platter, a storage device wherein the storage device is a solid state storage device, and a

storage device according to claim 1wherein the storage device is an optical storage device. (See col. 6 lines 13-17, col. 7 lines 57-61, and col. 5 lines 19-20) The rational for combining are the same as claim 4 above.

25. As per claim 22, it is objected and rejected under 37 CFR 1.75©, as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form because claim 22 did not further limit claim 1.

computer system incorporating a storage device according to claim 1.

26. As per claim 25, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. In addition Fisherman and White teach a method according to claim 24, wherein said selection of protection options includes the option, by entering a predetermined password, of setting the storage device in "unsupervised mode" whereby interface requests are not intercepted by the supervising means. (Fisherman, Col. 5 line 50-col. 6 line 50, White, Col. 6 lines 17-67) The rational for combining are the same as claim 4 above.

27. As per claim 26, the combination of Killean and Fisherman teach all subject matter claimed in claim 1. Further White teaches a method, wherein the selection also includes the option of setting the storage device in "supervised" mode and designating at least one of said partitions a Write Mary Recoverable (WMR) partition wherein, in use, if a write command is issued to overwrite any resident information stored in said at least one WMR partition by updated information, the updated information is written on the storage medium in a location other than where any resident information is stored and a pointer to the updated information is provided so that the updated information can be accessed as

required during the remainder of a session. (See col. 2 lines 5-31) The rational for combining are the same as claim 4 above.

28. As to claim 27, it has similar limitations as claim 8; therefore, it is being rejected under the same rationale.

29. As to claim 28, it has similar limitations as claim 9; therefore, it is being rejected under the same rationale.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eleni A Shiferaw whose telephone number is 703-305-0326. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Application/Control Number: 09/674902

Art Unit: 2136

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